

INTERMOUNTAIN STATION

Central Reference File

No. 0.13



QUARTERLY PROGRESS REPORT

2nd Quarter 1948 (April, May, June)

FOREST UTILIZATION SERVICE

CENTRAL STATES FOREST EXPERIMENT STATION
COLUMBUS, OHIO

H. L. MITCHELL, DIRECTOR

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NATIONAL FOREST TIMBER PROBLEMS

The Mark Twain and Clark National Forests in Missouri were visited by Brundage in April for the purpose of checking the present status of utilization problems previously reported in connection with timber management activities. The No. 1 problem of sawmill operators lately is what to do with the large proportion of No. 3 Common lumber produced from oak and associated hardwoods. The price was down to \$20 per M for rough stock. One operator was encountered who had found a local market for green No. 3 Common S I S boards which brought \$40 per M bd. ft., or double the rough price. But apparently such outlets were not generally available within short hauling distances of the majority of small mills. Timber sale men consider wasteful sawing practices, (primarily miscuts and thick slabs) to be second in importance as a brake on better net returns from the conversion of all grades of logs. They place non-utilization of low grade and defective trees third on the list of current problems with some exceptions where the proportions of unmerchantable trees (less than 30 percent merch according to contract definition) and logs are exceptionally high per acre. One such sale area on the Clark was observed where the ratio of unmerchantable to merchantable trees (mostly scarlet oak unmerch) marked for cutting, or which should have been cut for stand improvement, was about 2 to 1. There was also much sound top waste on this area. Blackjack oak was not rated as a serious utilization problem by any of the N.F. personnel visited on this trip. Rangers and timber management assistants all thought the return of the kind of advisory service on small-mill installation, maintenance, and operation formerly provided by TPWP would be the most effective method of directly increasing net returns, thereby indirectly improving stumpage values and woods utilization.

Two oak flooring manufacturers were visited on this trip where some unusual features were noted. One in Springfield, Missouri, has been notably successful in making part of his product from cull staves cut originally for tight cooperage. This plant has a new (1946) Moore dry kiln of 80M holding capacity with 13 60-inch fans, in which air dry oak is dropped to 5-6 percent moisture content in 72 hours. Another factory at Birch Tree, Missouri, is part of an organization set up both to produce and install oak flooring - the complete job from log to living room. The flooring goes entirely into buildings in the St. Louis area. Usually there are 60 floor-laying jobs going on at one time. Contrary to the usual practice of kiln drying flooring stock to 5 or 6 percent MC, this company is drying its product to between 9 and 11 percent. Experience has shown, it is claimed, that this MC gives more satisfactory results in the long run in the high-humidities which prevail about 2/3 of the year in the St. Louis area.

LOGGING AND MILLING

A Logging Equipment Show is definitely scheduled for the Kaskaskia Experimental Forest in southern Illinois. It will probably be held about October 14 to avoid conflict with the Central States Section meeting and the Illinois Forestry Congress. The Extension Service of the University will be invited to participate and wide publicity will be given to timber operators in southern Illinois, southwestern Indiana, western Kentucky, and southeastern Missouri. Emphasis will be placed on the less expensive commercial equipment and on home-made devices.

METAL DETECTORS

The Penrod, Jurden and Clark Company, veneer manufacturers in Kansas City, asked for advice on installation of a log rollway at their mill for searching walnut logs for metal enroute to the sawmill carriage. The deck is to have a thick concrete base topped by heavy timbers with no metal fastenings anywhere. A test of the crushed rock and sand which would have been used for the concrete showed that the sand was magnetic enough to affect the detector. The concrete company had a small supply of sand from another source which was non-magnetic. This is to be used for the rollway installation.

The General Manufacturing Company in Kansas City is now using the SCR-625 Army mine detector to search walnut flitches at their large veneer mill. This company previously tried to have a special automatic production-line metal detector designed for use with flitches enroute from headsaw to hot water vats.

An illustrated article on detecting metal in logs by Brundage appeared in the May issue of WOOD magazine.

SEASONING

Observations at tight-cooperage plants were continued by men from the Madison Laboratory and FUS in connection with the tight-cooperage seasoning study. Rasmussen and Baltes (FPL) visited two plants in St. Louis with Brundage. One of these is an old establishment purchased last year by National Distillers which has been converted to a salvage operation. Staves not up to bourbon-barrel quality are sent to this plant and made into other types of tight barrels and kegs. Antiquated 2-story dry kilns were found at this plant with coils largely waterlogged. The management was advised by Rasmussen regarding inexpensive alterations which would shorten the kiln drying time by at least 50 percent. The other plant is an independent old-line establishment having one Moore forced draft kiln recently installed and three older Sturtevant blower kilns. While doing a good job of kiln drying their air dry staves, it was evident that the 3-week schedule generally followed could be cut down to 5 days by making a few improvements to get better heating efficiency from the present boiler installation and better circulation of air thru the loads. The final MC desired is 10 to 11 percent. Manufacturing losses average about 2 staves per barrel from all causes.

The solvent seasoning process using perchlorethylene, developed by a Chicago chemist as noted in our 4th Quarter 1947 report, has not yet been tried on a commercial scale. Information picked up on a visit to Kling Brothers Engineering Works was that the Union Fork and Hoe Company is now interested, and effort is being made to have the company install a pilot plant.

GLUING

A meeting was held on April 15 in Louisville, Kentucky, to discuss the need for giving gluing demonstrations in the field by Madison Laboratory specialists. The group included Managing Director Hayward of the Hardwood Dimension Manufacturers Association, eight representatives of wood products manufacturers in Louisville, T. R. Truax of the Laboratory and four members of FUS. The latter were Carter, N.E. Station - Hertzler, S.E. Station - Lockard, Southern Station, and Brundage, C.S. Station. It was the concensus of the industry representatives that gluing practices in general were considerably behind gluing research and that demonstrations and reviews of proper practices by research specialists would be of decided benefit both to management and gluing department personnel. Truax proposed a departure from the type of gluing courses formerly given at the Madison Laboratory. The new-style demonstration would be localized for a geographic grouping of glued-wood-products manufacturers and would consist of: (1) observations of current gluing practices by FPL gluing specialists at the plant of each company intending to enroll personnel in the demonstration classes; and, (2) a two- or three-day clinic led by the FPL specialists attended by all enrollees. The clinic would be conducted by the Laboratory on a cooperative-fee basis. The plan was unanimously approved and it was decided to hold the first clinic at Louisville for manufacturers in and adjacent to Louisville and its neighboring city across the Ohio River, New Albany, Indiana.

Laboratory gluing specialists Don Brouse and R. F. Blomquist observed gluing practices at several plants in this area during the period June 7-11, accompanied by Brundage who paid special attention to seasoning practices and variations in moisture content of surfaced lumber as it was being routed for re-manufacture. Brouse and Blomquist then returned to Madison to analyze their observations and organize a program for a 3-day clinic. The clinic was held on June 28, 29 and 30 in a lecture room of the Speed Scientific School, University of Louisville. The Director of HDMA acted as sponsor for the clinic with respect to recruiting and enrolling company representatives, collecting prorated fees, and arranging for the lecture room. Attendance at the clinic numbered 28 men from 12 companies in addition to the Director of the HDMA, C. C. Bell of the Laboratory, and Lockard, Hertzler and Brundage of FUS. The subject matter covered: (1) purpose of clinic; (2) general properties and characteristics of wood and comments on seasoning; (3) preparation of wood for gluing; (4) principles of gluing in relation to properties and operating characteristics of (a) animal glue, (b) starch glue, (c) casein glue, (d) synthetic resin glues; (5) principles of glued wood construction; (6) durability of glue joints; (7) conditioning of glued products; (8) detection and correction of gluing troubles.

WOOD SUGAR

The Ralston Purina Company, said to be the largest-volume producers of stock feed in the U.S., are conducting some palatability tests with molasses made at the FPL from red oak. It is the policy of the Product Development Department at this plant never to use any new product in their feeds until it has been thoroughly tested at their own experimental farms over a period of one to two years or longer. In an interview with Brundage at St. Louis, the manager remarked about the very smoky odor of the oak molasses and expressed the hope that it can be eliminated or appreciably reduced in the course of further laboratory research and pilot plant operation. Asked about the use of yeast by the company as a protein feed, he said in 19 years of experimentation they had found no particular benefits which could justify its high price in comparison with other forms of protein feeds. He could see no prospects for a large market for fodder yeast produced from wood sugar unless its production cost can be reduced considerably below present estimates.

Dr. C. McClary of Anheuser-Busch, Inc., St. Louis, told Brundage during a call at his office that the Torula strain of yeast which grows in wood sugar solution is toxic to the strain of baker's yeast they now manufacture. While they believe production of Torula will be feasible if it can be made for 8¢ a pound or less, they are not going ahead with any commercial-scale trials at this time because the toxic effect will not permit alternate use of their present baker's yeast equipment, and the cost of a new plant would be exorbitant. If and when the company makes wood yeast they will probably buy 50 percent molasses and then dilute it to a 10 percent sugar solution for yeast propagation.

A call at the Quaker Oats Company office in Chicago resulted in a request for 200 lbs. of wood molasses to be sent to their plant at Cedar Rapids, Iowa, for later experimental testing as a component in mixed feeds on their Illinois farms. Their research director will be in Europe through the summer and fall, so may not start any tests this year.

On April 14, Day conferred with Dr. Martell, Head of the Department of Forestry, and Dr. Quackenbush, Head of Agricultural Chemistry, at Purdue University, to explain possible cooperation in the production of wood sugar molasses. While the possibilities of operating a pilot plant at Purdue are unfavorable, the Department of Agricultural Chemistry expressed great interest and hope to do some work in this field themselves. In view of the firm industrial demand for molasses, it was believed that a pilot plant operation might be considered favorably by the Purdue Research Foundation at one of the larger wood using industries in the state.

CHARCOAL

A large producer of charcoal in Missouri with an installation of 14 cylindrical kilns was asked whether he would consider it feasible to handle the marketing, along with his own production, of charcoal made by small operators in his vi-

cinity. His response was that he not only disapproved of such a proposition, but was violently opposed to any competitive production of charcoal whatever by small operators. He claimed it was a struggle to find markets enough to consume his own production. Output at this plant was said to be about 32 tons of charcoal a kiln every 12 days, giving a total of around 1120 tons a month from all 14 kilns. Blackjack oak is preferred but the proportion of this species supplied by contract cutters is rather small. Most of the wood is red oak and hickory. The plant has a hammer mill, belt conveyors and other labor saving equipment. Ground charcoal in various degrees of fineness is packed in paper bags for carload shipments.

GENERAL

FUS Personnel attended the following meetings during the quarter: Annual Program Conference, Central States Station, Columbus, May 3 to 5; Annual Program Conference, Forest Products Laboratory, Madison, May 24 to 29; Logging Equipment Show, College Park, Md., June 8 to 10.

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